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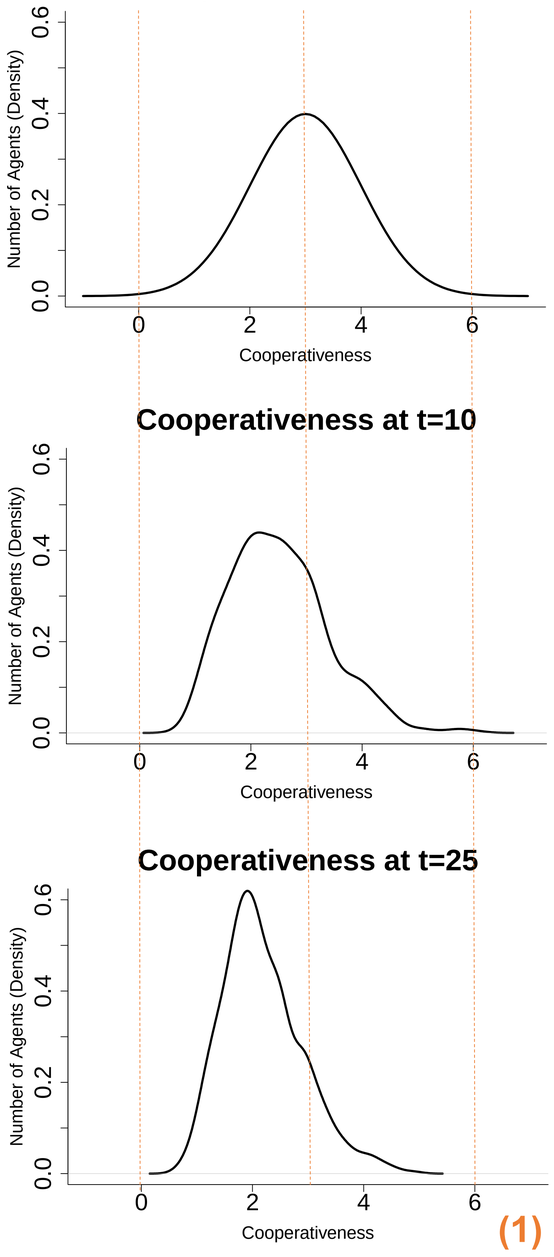
Punishment Cannot Explain Human Cooperation, But a Generative Understanding of Moral Values Can

Research Question: Why do humans engage in costly cooperation with non-kin?

Model 1: Punishment

t=generation

Cooperativeness at t=0



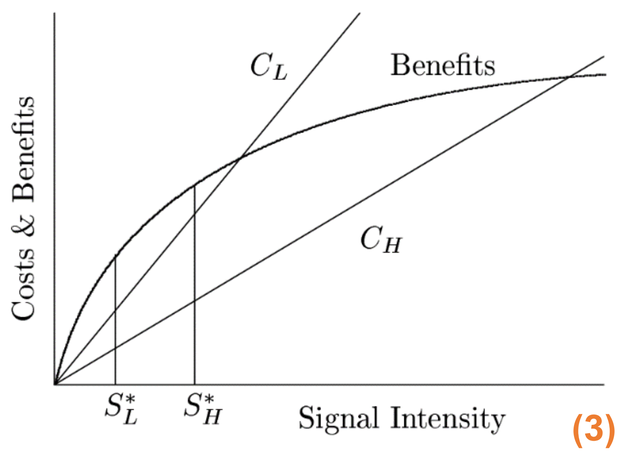
Cooperativeness at t=10

Cooperativeness at t=25

(1)

(2)

Among many Late-Pleistocene appropriate foraging societies food is equally shared among all members of the group independent of their contribution (Hawkes & Bird, 2002).

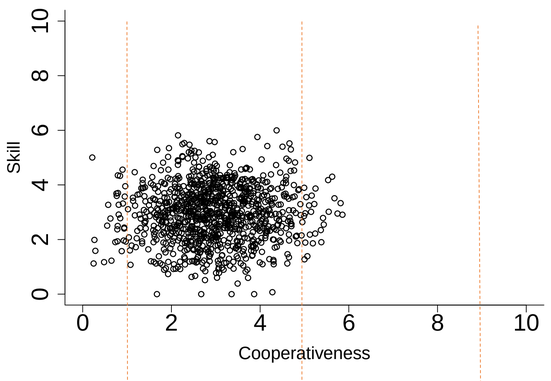


(3)

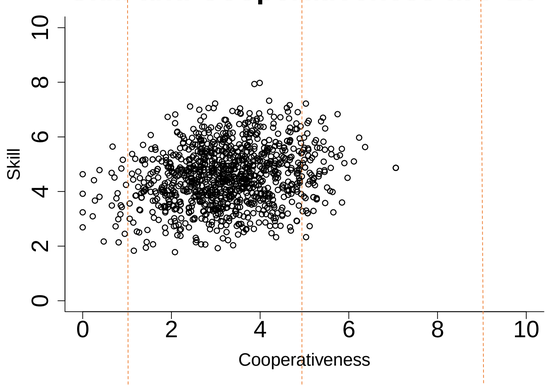
Though Zahavi (1975) became well-known for introducing the handicap principle, it was Grafen (1990) who formalized it and showed that the model works only when high-quality signalers have a higher optimal signaling level than low-quality signalers. Regarding hunting this would translate into the idea that more skilled hunters have lower costs producing the same signal.

Model 2: Reputation

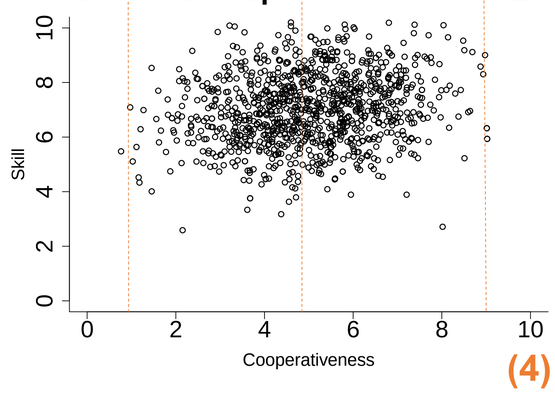
Skill and Cooperativeness at t=0



Skill and Cooperativeness at t=10



Skill and Cooperativeness at t=25



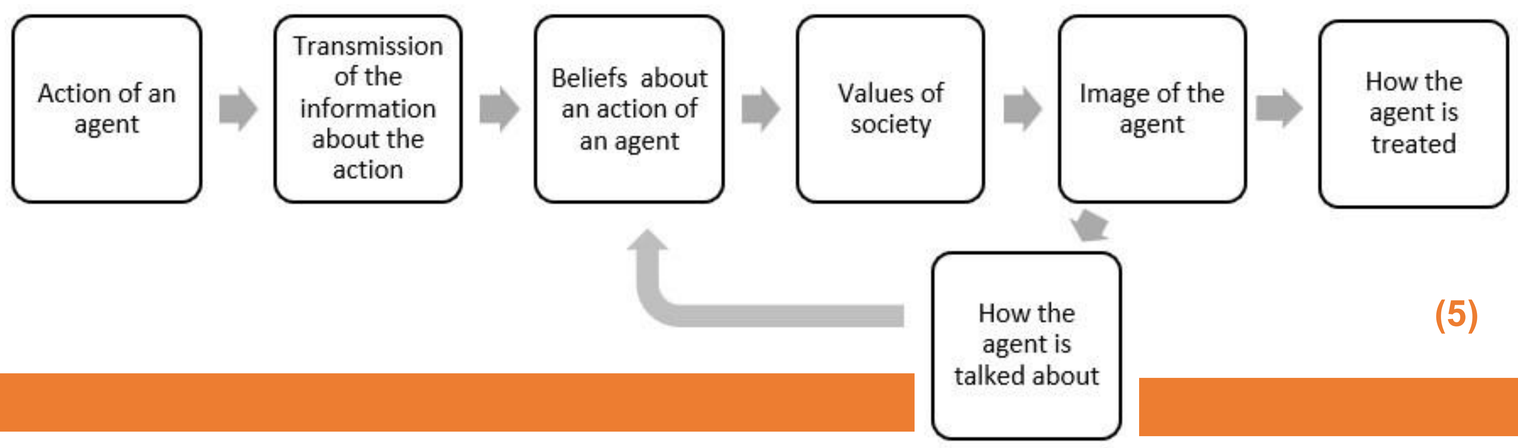
(4)

ARGUMENT

- Humans are extraordinarily cooperative
- It is regarded as a puzzle how human cooperation could emerge in a Darwinian world
- Modeling suggested that punishment can secure human cooperation
- These models conceptualize agents as only having two choices: contribute or not. **We change the binary value to a continuous value integrating the quantity of the contribution of an agent**
- **We find that if punishment is the only force to secure cooperation, every agent would just do enough to not be punished** (1)
- We provide evidence that this is not enough for securing many forms of cooperation
- We review ethnographic data and find that food sharing is common among foraging societies, which are regarded as Late-Pleistocene appropriate
- Food is equally distributed between group members independent of their contribution (2)
- There must be a selective incentive: a benefit that only rewards suppliers.
- This selective incentive is reputation rather than nutrition according to the *handicap principle*.
- The handicap principle only works when high-quality individuals pay less for the same signal.
- In the case of hunting this would mean that more skilled individuals are less likely to be injured when for example hunting a hippo
- **We model reputation, in a model where skilled individuals can produce the same signal of cooperation with lower costs** (3)
- **We find: First the skill evolves then cooperativeness** (4)
- We analyse the two selective forces in the second model
- Costs are produced when the cooperative action is performed
- How does reputation work and why does it impact reproduction? (5)

The Benefit Function of Model 2: Values in Context

The Reputation Economy



(5)

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